CLAIMS:

1. A scroll compressor in which the interior of a closed vessel is divided into a compression chamber on the upper side, which has a refrigerant compressing section, and a motor chamber on the lower side, which has a motor and is included in a part of a circulating path for refrigerant gas, by a main frame; in said motor chamber, there are provided, as means for causing a motor upper space to communicate with a motor lower space, first communicating means formed on the outer periphery side of a stator of said motor and second communicating means formed on the rotor side of said motor or on the rotor rotating shaft side; and a radial fan and a balancer that rotate together with said rotor are provided on the upper end side of said rotor, so that some of said refrigerant gas is sucked from said motor lower space via said second communicating means, and is discharged into said motor upper space so as to be circulated in said closed vessel by said radial fan, wherein

said radial fan has a plurality of blades formed radially in the range of approximately 180° opposed to said balancer so as to have a height smaller than the height of said balancer, and a fan cap including a fan cover portion covering the top faces of said blades and an engagement portion fixed to the upper end side of said rotor.

2. The scroll compressor according to claim 1, wherein said fan cap is arranged above said second communicating means, and said second communicating means communicates with said motor upper space via blades.

3. The scroll compressor according to claim 1 or 2, wherein said fan cap is formed by one substantially disk-shaped metallic sheet having an insertion hole for said rotor rotating shaft in the center thereof, almost a half of which is used as said fan cover portion and the remaining half of which is used as said engagement portion.

4. The scroll compressor according to claim 1, 2 or 3, wherein said fan cap

has a connecting portion for integrally connecting said fan cover portion and said engagement portion in a step form so that said fan cover portion and said engagement portion are located at positions having different heights.

5. The scroll compressor according to any one of claims 1 to 4, wherein in the case where said rotor is a cage rotor, and the blades of said radial fan are formed integrally with an end ring of said cage rotor, while said balancer is formed separately, the engagement portion of said fan cap is fixed to the upper end portion of said rotor together with said balancer in a state of being held between said balancer and the upper end portion of said rotor.

6. The scroll compressor according to any one of claims 1 to 4, wherein in the case where said rotor is a cage rotor, and both of the blades of said radial fan and said balancer are formed integrally with an end ring of said cage rotor, the engagement portion of said fan cap is fixed to the upper end portion of said balancer in a state of being put on said balancer.

7. The scroll compressor according to any one of claims 1 to 4, wherein in the case where said rotor is a permanent magnet rotor, and the blades of said radial fan are formed integrally with an end plate installed to said magnet rotor, while said balancer is formed separately, the engagement portion of said fan cap is fixed to the upper end portion of said rotor together with said balancer and said end plate in a state of being held between said balancer and said end plate.

8. The scroll compressor according to any one of claims 1 to 4, wherein in the case where said rotor is a permanent magnet rotor, and both of the blades of said radial fan and said balancer are formed integrally with an end plate installed to said magnet rotor, the engagement portion of said fan cap is fixed to the upper end portion of said balancer in a state of being put on said balancer.

9. The scroll compressor according to any one of claims 1 to 4, wherein the blades of said radial fan consists of fan blades formed by bending a metallic sheet, which has an insertion hole for said rotor rotating shaft in the center thereof, into a waveform in the range of approximately 180° in the circumferential direction with said insertion hole being the center.

10. The scroll compressor according to claim 9, wherein an engagement portion which is fixed to the upper end portion of said rotor is provided in the range of remaining 180° of said metallic sheet, and said engagement portion is formed with a split groove which divides said engagement portion into two.

11. A scroll compressor in which the interior of a closed vessel is divided into a compression chamber on the upper side, which has a refrigerant compressing section, and a motor chamber on the lower side, which has a motor and is included in a part of a circulating path for refrigerant gas, by a main frame; in said motor chamber, there are provided, as means for causing a motor upper space to communicate with a motor lower space, first communicating means formed on the outer periphery side of a stator of said motor and second communicating means formed on the rotor side of said motor or on the rotor rotating shaft side; and a radial fan and a balancer that rotate together with said rotor are provided on the upper end side of said rotor, so that some of said refrigerant gas is sucked from said motor lower space via said second communicating means and is discharged into said motor upper space so as to be circulated in said closed vessel by said radial fan, wherein

said rotor is a permanent magnet rotor having an upper end plate and a lower end plate, and said radial fan consists of grooves formed radially on the lower surface side of said upper end plate so as to communicate with said second communicating means.

12. The scroll compressor according to claim 11, wherein said balancer is

formed integrally with said upper end plate in the range of approximately 180° opposed to said radial fan.

13. A scroll compressor in which the interior of a closed vessel is divided into a compression chamber on the upper side, which has a refrigerant compressing section, and a motor chamber on the lower side, which has a motor and is included in a part of a circulating path for refrigerant gas, by a main frame; in said motor chamber, there are provided, as means for causing a motor upper space to communicate with a motor lower space, first communicating means formed on the outer periphery side of a stator of said motor and second communicating means formed on the rotor side of said motor or on the rotor rotating shaft side; and a radial fan and a balancer that rotate together with said rotor are provided on the upper end side of said rotor, so that some of said refrigerant gas is sucked from said motor lower space via said second communicating means and is discharged into said motor upper space so as to be circulated in said closed vessel by said radial fan, wherein

said radial fan is formed by one metallic sheet having an insertion hole for said rotor rotating shaft in the center thereof, and has a fan blade portion including a plurality of radial grooves formed by bending said metallic sheet into a waveform in the range of approximately 180° in the circumferential direction with said insertion hole being the center so as to communicate with said second communicating means and an engagement portion formed so as to be fixed to the upper end side of said rotor together with said balancer in the range of remaining 180° .